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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/434,703	11/05/1999	ERIC O. BODNAR	LS/0001.01	4272

7590 07/18/2003

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EXAMINER
NGUYEN, LUONG TRUNG

ART UNIT	PAPER NUMBER
2612	23

DATE MAILED: 07/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/434,703	BODNAR ET AL.	
	Examiner	Art Unit	
	LUONG T NGUYEN	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 June 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/23/2003 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-68 filed on 6/23/2003 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claim 67 is objected to because of the following informalities:

Claim 67 (line 3), "plain" should be changed to --planes--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3-13, 21, 23-33, 41, 43-53,61-63, 66-68 are rejected under 35 U.S.C. 102(e) as being anticipated by Acharya et al. (US 6,154,493).

Regarding claims 1, 10, Acharya ('493) disclose a method for distributed digital image processing, comprising recording luminosity information at a first device (captured images by camera 830 are recorded in memory 834, figures 7-8, column 12, lines 25-35); without performing color interpolation at the first device, generating compressed luminosity information at the first device by applying a wavelet transform compression to individual bit planes that comprise the luminosity information, follow by applying quantization and compression to the luminosity information (captured images are compressed by an image compression circuit 832, the compressing separately each of color plane channels, see Abstract, figures 2, 7-8, column 12, lines 45-50); transmitting said compressed luminosity information to a second device (the compressed images are transferred to computer system 810, figures 7-8, column 13, lines 15-25); restoring said luminosity information from said compressed luminosity information at the second device (figure 8, column 13, lines 40-57); converting said luminosity information at the second device into a color image, including performing color interpolation at the second device (the application used to perform the integrated color interpolation after download from camera 830, figure 8, column 13, lines 1-5, lines 40-52).

Regarding claims 3, 23, 43, Acharya ('493) disclose wherein said sensor information comprises light-level information for representing an image that has been digitally recorded at the first device (intensity values, column 11, lines 15-30).

Regarding claims 4, 44, Acharya ('493) discloses a generic binary compression module (compression quantizer 728, figure 7, column 12, lines 1-11).

Regarding claims 5, 25, 45, Acharya ('493) disclose run-length encoding (column 12, lines 5-11).

Regarding claims 6, 26, 46, Acharya ('493) disclose Huffman coding (column 12, lines 5-11).

Regarding claims 7, 27, 47, Acharya ('493) disclose reversing said compression that occurred at the first device (figure 3).

Regarding claims 8, 28, 48, Acharya ('493) disclose wherein said transmitting step includes transmitting said compressed sensor information in a wire-base manner (bus 760, figure 7).

Regarding claims 9, 29, 49, Acharya ('493) disclose wherein said transmitting step includes transmitting said compressed sensor information using a serial communication port (I/O port 817, figure 8).

Regarding claims 11, 31, 51, Acharya ('493) disclose apply a YUV transformation at the second device for converting said sensor into a color image in YUV color space (the application used to perform color space conversion after download from camera 830, column 2, lines 34-54, column 13, lines 1-5).

Regarding claims 12, 32, 52, Acharya ('493) discloses converting the color image into a standard file format at the second device (store XYZ color space image data in memory 811, figure 8, column 13, lines 15-40).

Regarding claims 13, 33, 53, Acharya ('493) discloses JPEG format (column 1, lines 65-67).

Regarding claim 21, Acharya ('493) disclose a method for deferring digital image processing, the method comprising recording sensor information at a first device (captured images by camera 830 are recorded in memory 834, figures 7-8, column 12, lines 25-35); compressing said sensor information prior to color processing by applying a transformation compression to individual bit planes that comprise the sensor information, for generating compressed sensor information at the first device (captured images are compressed by an image

compression circuit 832, the compressing separately each of color plane channels, see Abstract, figures 2, 7-8, column 12, lines 45-50); without performing color processing at the first device, transmitting said compressed sensor information to a second device (the compressed images are transferred to computer system 810, figures 7-8, column 13, lines 40-47); decompressing said compressed sensor information at the second device, whereupon said sensor information may thereafter be processed into color image (figure 8, column 13, lines 40-52).

Regarding claims 24, 67, 68, Acharya ('493) discloses applying wavelet transform to individual bit planes that comprise the sensor image (see abstract, column 4, lines 49-61); and applying compression to the transformed sensor image, to create said compressed sensor image at the first device (compression quantizer 728, figure 7).

Regarding claims 30, 50, Acharya ('493) discloses converting sensor information into color by interpolating color information (color interpolation data, column 13, lines 40-47).

Regarding claim 41, Acharya ('493) disclose am imaging system providing deferred image processing, the system comprising an imager (camera 830, figure 8, column 11, lines 15-65, column 12, lines 24-45); compressor module for compressing said luminosity information by applying a transformation compression to individual bit planes that comprise the luminosity information, for generating compressed luminosity information at the imager without performing color processing at the first device (captured images are compressed by an image compression circuit 832, the compressing separately each of color plane channels, see Abstract, figures 2, 7-8,

column 12, lines 45-50; column 13, lines 40-47); a communication link (bus 760, figure 7); a decompression module for decompressing said compressed luminosity information at the target device, whereupon said luminosity information may thereafter be processed into color image (figure 8, column 13, lines 40-52).

Regarding claim 61, Acharya ('493) discloses a digital camera (digital camera 830, figure 8, column 12, lines 24-45).

Regarding claim 62, Acharya ('493) discloses a desktop computer (computer 810, column 12, lines 24-30).

Regarding claim 63, Acharya ('493) discloses a server computer (computer 810, column 12, lines 24-30).

Regarding claim 66, Acharya ('493) discloses gray-scale luminosity information (m bit intensity, column 11, lines 45-50).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 2, 15-17, 22, 35-37, 42, 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya et al. (US 6,154,493) in view of Fukuoka (US 5,754,227).

Regarding claim 2, 22, 35, 42, Acharya ('493) fail to specifically disclose wherein said transmitting step is performed in a wireless manner. However, Fukuoka teaches images captured by the camera can be transferred through the I/O card 15 which functions as modem connected to an on-line service such as American On Line (column 3, lines 50-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('493) by the teaching of Fukuoka in order to transmit the image to a remote device without using cable.

Regarding claims 15-16, 36, Acharya ('493) fail to specifically disclose transmitting said compressed luminosity information using a packet-based communication protocol, and selectively connecting the digital camera to a cellular phone for establishing a wireless communication session with the computer. However, Fukuoka teaches images captured by the camera can be transferred through the I/O card 15 which functions as modem connected to an on-line service such as American On Line, and the communication is a type of communication protocol (column 3, lines 50-60, column 7, lines 24-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('493) by the teaching of Fukuoka in order to transmit the image to a remote device without using cable.

Regarding claims 17, 37, 57, Acharya ('493) fails to specifically disclose wherein said second device comprises a computer with connectivity to the Internet. However, Fukuoka discloses computer connect to Internet (American On Line, col. 3, lines 55-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('493) by the teaching of Fukuoka in order to makes the color image available to multiple users.

Regarding claim 55, 56, Acharya ('493) discloses a digital camera (digital camera 830, figure 8); computer (computer 810, figure 8). Fukuoka discloses cellular phone device (cellular phone, figure 3, column 5, lines 40-45).

8. Claims 14, 18-20, 34, 38-40, 54, 58-60, 64-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya et al. (US 6,154,493).

Regarding claim 14, 34, 54, Acharya ('493) fails to specifically disclose applying JPEG compression to the color image at the second device. Official Notice is taken that applying JPEG compression to the color image at the second device such as a computer is well known the art. This reduces the time to transmit image data to another device in a network.

As for claims 18-20, 38-40, 58-60, Acharya ('493) fail to specifically disclose transmitting said compressed sensor information by first transmitting a lower-quality representation of the image recorded at the first device. However, Acharya ('493) discloses compressed signals could be downloaded to the computer (figure 8). It would have been obvious

that lower-quality image is converted into higher-quality image in order to let the user could see a higher quality on the display.

Regarding claim 64, Acharya ('493) fail to specifically disclose a CMOS image sensor. Official notice is taken that such CMOS image sensor is used in a camera is well known in the art. The CMOS image sensor can be integrated with control and signal processing circuit to form a camera on a chip. This reduces the size of the camera.

Regarding claim 65, Acharya ('493) fail to specifically disclose a CCD image sensor. Official notice is taken that such CCD image sensor is used to capture image in a camera is well known in the art.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Luong Nguyen** whose telephone number is **(703) 308-9297.** If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Wendy Garber**, can be reach on **(703) 305-4929.**

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872 - 9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

LN LN
7/13/2003

NGOC-YEN VU
PRIMARY EXAMINER